

REMARKS

The drawings were objected to under 37 C.F.R. §1.83(a). It is believed that this objection will be overcome by the correction of Figs. 8 and 16, as shown in red on the enclosed copies of the drawing pages that contain such figures.

Accordingly, approval to correct the drawings, as proposed, and reconsideration and withdrawal of the objection to the drawings following such corrections are respectfully requested.

Minor corrections of an editorial nature have been made to the specification, in the paragraphs beginning on page 1, at line 13, page 2, at line 4, page 6, at line 25, page 7, at line 4, and page 8, at lines 8 and 20. Each of the requested amendments is believed to be proper and unobjectionable and entry of each of such amendments is, therefore, respectfully requested.

Claim 1 was rejected under 35 U.S.C. §102(b) as being anticipated by Bono et al. (5,224,614). This rejection is believed to be moot in view of the cancellation of claim 1, without prejudice.

Claims 1, 17 and 18 were rejected under 35 U.S.C. §102(b) as being anticipated by Krishnakumar et al. (5,472,105). This rejection is believed to be moot as to claims 1 and 18, in view of the cancellation of each of such claims, without prejudice, and is also believed to be moot as to claim 17 in view of its amendment to depend from newly-presented claim 19. In that regard, claim 19 incorporates features previously present in claims 1 and 18. However, it is respectfully submitted that Krishnakumar et al. does not "read on" claim 19, as it must to support a proper rejection under 35 U.S.C. §102(b); specifically, the distance between the panels of Krishnakumar et al. cannot be determined by reference to dimension d_4 , because that is the dimension to the root of the corrugation of the gripping panel depicted therein, whereas the actual gripping

distance between such panels is the distance to the tips of such corrugations, and not the distance to the roots of them.

Accordingly, it is respectfully requested that claim 19 not be rejected under 35 U.S.C. §102(b) based on Krishnakumar et al.

Claims 1-9 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kerr (D277,551) in view of Krishnakumar et al. This rejection is believed to be moot as to claim 1, in view of its cancellation, without prejudice, and it is respectfully traversed as to claims 2-9, both as to their dependency from newly-presented claim 19 and on their individual merits.

Kerr, as a design patent, has no dimensions to support a rejection of claims directed to a dimension-critical article. Further, Kerr fails to disclose, or teach, the use of circumferentially spaced apart inwardly projecting panels that are required to accommodate partial collapsing of a container used to package hot-filled beverages. Thus, there is no teaching in Kerr that its non-circular construction can be successfully adapted to the packaging of hot-filled still beverage products in view of the types of loads that such a container must endure as it collapses upon cooling in the manner of the containers of this application.

Krishnakumar et al. does teach a 64 oz. container that is adapted for the packaging of hot-filled still beverages. However, the container of Krishnakumar et al. is generally circular in cross-section, as is clear from Fig. 3, and there is no clear teaching therein that the spacing between the gripping panels in such a container can be held to no more than the specified 2-1/2 inch dimension. It is also noted that the gripping panels of Krishnakumar et al. extend into the body portion of the container beyond the longitudinal centerline of the container, and this construction fails to meet the specific limitation of claim 3.

Accordingly, reconsideration and allowance of claims 2-9 are respectfully requested.

Claims 10-16 were rejected under 35 U.S.C. §103(a) as being unpatentable over Krishnakumar et al. in view of Entrup (D385,196). This rejection is respectfully traversed because claims 10-16, now depend from claim 19 instead of claim 1, and on their individual merits.

To begin with, the Entrup reference (like the Kerr reference) is clearly not adapted for the hot-filling of a still beverage product because it clearly does not have the circumferentially spaced apart plurality of inwardly projecting panels that are needed in such a container to accommodate the partial collapse of the container upon cooling, after filling and capping. Thus, there is no teaching in Entrup, or in Krishnakumar et al., that the container of Entrup can be adapted in a satisfactory manner to the packaging application contemplated and claimed by Applicants, especially since Krishnakumar et al. clearly teaches, as recognized by the Examiner, that the gripping panels should be located in the body portion of the container and not in the neck portion. Further, as pointed out above, the spacing between the gripping panels of Krishnakumar et al. is not properly calculated by reference to the dimension d_4 , because that is dimension to the roots of the corrugations in the gripping portion and not the dimension to the tips of the corrugations.

Accordingly, reconsideration and the withdrawal of the rejection of claims 10-16 under 35 U.S.C. §103(a) as being unpatentable over Krishnakumar et al. in view of Entrup are respectfully requested.

Claims 10-16 were also rejected under 35 U.S.C. §103(a) as being unpatentable over Holmes (D308,167) in view of Krishnakumar et al. This rejection is respectfully

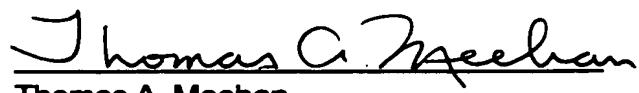
traversed both as to the dependency of such claims from newly-presented claim 19 and on the individual merits of such claims.

There is no disclosure or teaching in Holmes that the container depicted therein is adapted for the packaging of a hot-filled still beverage that is to be capped after filling and before cooling, because it fails to disclose or teach the circumferentially spaced apart plurality of inwardly projecting panels that are need in such a container to accommodate partial collapsing of the container upon cooling of the package beverage. Thus, Holmes fails as a primary reference not only because it fails to meet the claimed dimensions of the container, as recognized by the Examiner, but also because it fails to meet the limitations of former claim 18, which are now incorporated into claim 19. While Krishnakumar et al. does disclose, and teach, a container that is adapted for use in the packaging of a hot-filled beverage product, as recognized by the Examiner, it fails to appreciate that, in a container with a circular body, the spacing between the gripping panels can be maintained at an acceptable level by incorporating the gripping panels in the neck of the container, rather than in the body. In any case, as pointed out above, the spacing between the gripping panels of Krishnakumar et al. is not to be determined by reference to dimension d_4 , which is the dimension to the root of the corrugations in the gripping region; it is to be determined by reference to the dimension to the tips of such corrugations, which is not set forth in the reference with a degree of specificity needed to support a rejection of the claims at issue.

It is respectfully submitted that Applicants have responded in a satisfactory manner to all matters at issue in this application, and that this application is now in

condition for allowance. Reconsideration and allowance of this application and an early date are, therefore, respectfully requested.

Respectfully submitted,



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HOT-FILLABLE PLASTIC CONTAINER WITH INTEGRATED HANDLE

FIELD OF THE INVENTION

This invention relates to a blown plastic container with an integrated handle or gripping feature that does not involve the use of an opening that extends through the container. More particularly, this invention relates to a hot-fillable container of the foregoing description that is well-suited for manufacturing in large sizes, for example, sufficiently large to contain 48 – 64 oz. liquid therein while not requiring a gripping portion of a width that is excessive for persons with small hands.

BACKGROUND OF THE INVENTION

U.S. Patent 5,472,105 Krishnakumar, et al., the disclosure of which is incorporated by reference herein, describes a hot-fillable container that is blown from a preform of a thermoplastic material, specifically, polyethylene terephthalate (PET), alone or in combination with layers of other materials. The container of the '105 patent, which is taught as being well-suited for the packaging of beverages in 64 oz. sizes, has a generally right circular cylindrical body portion with a circumferentially spaced apart and generally opposed pair of indented panels that flex inwardly, upon the cooling of a filled and capped bottle, to accommodate thermal contraction of the packaged beverage. The indented panels of the '105 patent, which do not form an opening that extends through the container, also serve to provide spaced surfaces that can be grasped between the thumb and fingers of a hand of a user to permit the user to handle the container. Unfortunately, for a large size container of the type taught by the '105 patent, the spacing between the gripping panels, which extend inwardly substantially to the vertical centerline of the container, cannot be substantially reduced below about 3.5 in. (about 90mm), which is about 55-70% of the major lateral extent of the container. Individuals with smaller hands may have difficulty in handling a filled container with a gripping feature with such spacing between surfaces to be gripped.

SUMMARY OF THE INVENTION

According to the present invention, there is provided a hot-fillable plastic container for packaging hot-filled beverages in large sizes, the container having an integral handle or hand-gripping feature in which the spacing between opposed gripping surfaces is sufficiently small, for example, no more than about 2.5 in. (about 65mm), which is approximately 45% of the major lateral extent of the container, to be grippable by people with small hands. In a first embodiment of the present invention, the hand grip feature is in a non-circular half portion of a body portion of a container whose other half portion is otherwise generally circular in cross section. In this embodiment, the cross section of the body is generally oval-shaped, and the gripping feature, which stops somewhat short of the vertical centerline of the container, is in a smaller diameter end of the container, and, consequently, may be held to a dimension that does not exceed 2.5 in. for easy gripping by a consumer with small hands.

In a second embodiment of the present invention, the container may be provided with a generally cylindrical body portion that is generally circular in cross section, without a gripping feature in the body portion, but with an integral gripping portion being provided in an otherwise generally frusto-conically-shaped neck that extends upwardly from the body portion toward a closure-receiving finish portion. The gripping feature in this embodiment is formed by spaced-apart, opposed inwardly extending panels in the neck portion, and these panels need not be spaced apart even by as much as 2.5 in, and can easily be held under 45% of the major lateral extent of the container.

Accordingly, it is an object of the present invention to provide an improved hot-fillable container that is suitable for packaging substantially large volumes of a liquid. More particularly, it is the object of the present invention to provide a container of the aforesaid description with an integral

packaging of hot-fill juices or other still beverage products, and it is to these packaging applications that the present invention is especially directed.

As is clear from the drawing, for example, from a comparison of Figs. 3 and 5, the container 20 has body and base portions 22, 24 that are non-circular in horizontal configuration, the horizontal configuration or silhouette of the body portion 22, which is similar to that of the base portion 24 immediately therebelow, as can be seen in Fig. 6, being generally that of an oval with a larger diameter, part-circular end 24a on an end thereof and a smaller diameter part-circular opposed end 24b. The body portion 22 also has spaced apart, indented grip panels 22b, 22c extending into the body portion 22 from the smaller diameter end 24b of the body portion 22 and partly to the vertical center line of a container 20. The spacing between the grip panel 22b, 22c need be no more than about 2-1/2 in. for a 64 oz. container as described, as a result of the non-circular configuration of the body portion 22 of the container 20 and the positions of the grip panels 22b, 22c extending in from a smaller diameter end of the container 20. This spacing is substantially smaller than any gripping panel spacing that heretofore has been achieved in a body of a 64 oz. liquid container 20, and this permits convenient and comfortable gripping of the container 20 by engaging the panels 22b, 22c between the thumb and fingers of someone with a small hand.

It is also contemplated that the design of the container 20 maybe adapted to the packaging of a liquid in a smaller volume, for example, 48 oz., by shortening the vertical extent of the body portion 22 of the container 20 without reducing its lateral extent in any direction.

As is shown in Fig. 8, the indented ~~grip~~ panels 22b, 22c are generally concave in configuration, and do not extend to a vertical centerline of the container 20. Further, each of the indented grip panels has a depth D of approximately 0.250 inch, which is substantially less than the depth of a 0.500 - 0.900 inch that is ^{characteristic} of prior art, hot-fillable, integral handle or grip plastic containers. With such a gripping panel depth, the container 20 has a grip to major lateral extent (width) ratio, as measured between the depths of

the oppositely gripping pan is 22b, 22c, of approximately 45%, which is substantially less than that achievable with other known large, hot-fillable, grippable thermoplastic containers.

A container according to the embodiment of Figs. 9 – 16 is indicated generally by reference numeral 40 in the drawing. The container 20 is made up of a body portion 42 that extends for a substantial vertical distance, for example about 4-1/4 in. for a container 40 designed for the packaging of 64 oz. of a liquid, and a body portion 42 with a slightly enlarged base portion 44 immediately therebelow. The base portion 44 has a vertical extent of about 7/8 in. for a 64 oz. container 40, and serves to protect a label (not shown) that [maybe] applied to the exterior of the body portion 42 from contact with adjacent like containers 40 during shipping and on a retail shelf. The container 40 has a closure-receiving, externally helically extending threaded finish portion 46 for receiving an internally helically threaded closure (not shown) after the container 40 is filled with a beverage or other liquid to be packaged therein. Of course, other types of closure, for example lug-style closures, can be used to close a container 40 after filling, in which case the finish portion 46 will be provided with an external configuration other than that of a helical thread for receiving such a closure. In any case, except as hereinabove described, the container 40 is provided with a generally frusto-pyramidal neck portion 48 between the body portion 42 and the finish portion 46, the neck portion 48 having an indented portion 48b at the bottom thereof, immediately above the body portion 42, with a base portion 48c that has a slightly greater lateral extent than the body portion 42, again, to protect a label applied to the body portion 42 from damage as a result of contact with adjacent like filled containers 40. In that regard, the overall height of a 64 oz. container 40, including a height of the finish portion 46 of about 11/16 in. for a 43mm threaded closure, is about 10-3/8 in., assuming a maximum diameter of the base portion 44, which is circular in configuration, of about 4-5/8 in.

As designed, the container 40 is well-suited for the packaging of juices and other still beverages that are packaged while hot, and, because the

containers 40 are capped after filling while the contents are still hot, there will be some collapsing of a thermoplastic container after hot-filling and capping due to the cooling of the contents. Thus, the body portion 42 of the container 40 is provided with a plurality of circumferentially spaced apart, indented 5 panels 42a, which are placed around the body portion 42 to selectively provide for the inward flexing of the body portion 42 without leading to distortion in its overall configuration or of a label applied thereto.

While the body portion 42 of the container 40 may be, and preferably is, generally circular in cross-section, the neck portion 48 of the container 40 10 is made non-circular in cross-section by the provision of spaced-apart, opposed, inwardly projecting gripping panels 48d, 48e. The gripping panels 48d, 48e, which need not extend to the centerline of the container 40, and need not be spaced apart by even as much as 2-1/2 in., serve to permit grasping of the container 40 between the thumb and fingers of a consumer or 15 other person, even a person with small hands. As shown in Fig. 16, the gripping panels 48d, 48e are concave in configuration with a depth of approximately 0.400 inch. With such a gripping panel depth, the container 40 has a grip to major lateral extent (diameter) ratio, as measured between the depths of the opposed gripping panels 48d, 48e, of 41%.

20 As thus far described, either a container 20 or a container 40 ~~may be~~ blow molded in a single piece from a molded preform or parison of a suitable thermoplastic material. Co-extruded multi-layer preforms that include innermost and outermost layers of virgin PET with one or more intermediate layers of an oxygen barrier, for example, nylon or EVA, therebetween, 25 possibly also including a central layer of recycled PET, have been proven to be well-suited for the packaging of hot-filled juices or other still beverage products, and it is to these packaging applications that this embodiment of the present invention is especially directed. Other thermoplastic materials that are suited for use in the manufacture of thermoplastic containers by blow molding may also be used, and these materials include polyesters, polyolefins, polyethylene naphthalates, nitriles and copolymers thereof.

19 (New).

1. A container having a body portion with a closed bottom, a neck portion above said body portion, said neck portion tapering inwardly as it extends away from said body portion, and a closure-receiving finish portion, said neck portion being positioned between said body portion and said neck portion, said container being adapted to hold a liquid, being formed in a single piece by molding from a thermoplastic material and having a body portion with a lateral extent of at least 4 in., said container further having no opening extending laterally therethrough and having a gripping feature formed by a spaced apart pair of opposed gripping panels that extend into said container in one of said body portion and said neck portion, the space between said gripping panel being no more than 2-1/2 in., said body portion having a spaced apart circumferentially spaced apart plurality of inwardly projecting panels for partial collapsing to accommodate shrinkage of the packaged beverage as it cools.

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* that is adapted for packaging a still beverage that is introduced, while hot, into the container and is sealed in the container by applying a closure to the finish portion of the container while the beverage is still hot, said container

CLAIMS

We claim:

1. A container having a body portion with a closed bottom, a neck portion above said body portion, said neck portion tapering inwardly as it extends away from said body portion, and a closure-receiving finish portion, said neck portion being positioned between said body portion and said neck portion, said container being adapted to hold a liquid, being formed in a single piece by molding from a thermoplastic material and having a body portion with a lateral extent of at least 4 in., said container further having no opening extending laterally therethrough and having a gripping feature formed by a spaced apart pair of opposed gripping panels that extend into said container in one of said body portion and said neck portion, the space between said gripping panel being no more than 2-1/2 in.

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2. A container according to claim 1 wherein:
said body portion of said container has a cross-sectional configuration that is generally that of an oval with a larger, part-circular end and a smaller, part-circular opposed end; and
said gripping panels extend into said container in said body portion from said opposed end.

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3. A container according to claim 2 wherein:
said gripping panels extend into said body portion of said container only partly to a longitudinal centerline of said container.

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4. A container according to claim 3 wherein:
said body portion has a minor lateral extent of at least 4 in., and a major lateral extent of at least 5 in., the major lateral extent extending perpendicularly to said minor lateral extent.

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5. A container according to claim 4 wherein:
said container has an internal capacity of at least 64 oz.
6. A container according to claim 5 wherein:
each of said gripping panels is concave in cross-section.
7. A container according to claim 6 wherein a ratio of the space ^{between opposed gripping panels, as measured between depths of said gripping panels, to the major lateral extent of said container does not exceed} (spacing)
10 0.55.
8. A container according to claim 7 wherein said ratio is at least 0.35.
- 15 9. A container according to claim 8 wherein said ratio is approximately 0.45.
10. A container according to claim 1 wherein:
said body portion is generally circular in cross-section, and said
20 gripping panels extend into said container in said neck portion.
11. A container according to claim 10, wherein:
said body portion has a diameter of at least 4-1/4 in.
- 25 12. A container according to claim 11, wherein:
said container has an internal capacity of at least 64 oz.
13. A container according to claim 12 wherein:
each of said gripping panels is concave in cross-section.
- 30 14. A container according to claim 13 wherein:

a ratio of spacing ^{the space} between opposed gripping panels, as measured between depths of said gripping panels, to ^{the} major lateral extent of said container does not exceed 0.55.

5 15. A container according to claim 14 wherein said ratio is at least 0.35.

16. A container according to claim 15 wherein said ratio is approximately 0.41.

10 17. A container according to claim 1 ^{19,} wherein:
said thermoplastic material comprises at least an innermost layer of PET.

15 18. A container according to claim 17, wherein:
said container is adapted for packaging a still beverage that is introduced, while hot, into the container and is sealed in the container by applying a closure to the finish portion of the container while the beverage is still hot, said body portion having a circumferentially spaced apart plurality of 20 inwardly projecting panels for partial collapsing to accommodate shrinkage of the packaged beverage as it cools.